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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
VOLPER, THOMAS E	

ART UNIT	PAPER NUMBER
2665	10

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/502,143	GANZ ET AL.	
	Examiner	Art Unit	
	Thomas Volper	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 March 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-8,12,14-17,19-22,24-38 and 41-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-8,12,14-17,19-22,24-38 and 41-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 1 March 2004 have been fully considered but they are not persuasive.

2. In response to Applicants' argument regarding claim 1 that Joshi's disclosure of reacting to non-responsiveness of a station by not polling that station does not meet the limitations of "polling each of the communication stations," "for each of the communication sessions adapting a rate of polling associated with said session," and "continuing polling of each of the communication sessions according to the adapted polling pattern," the Examiner respectfully disagrees. Joshi discloses an adapted polling pattern that includes specifically polling each active station, as well as generally polling the inactive stations (col. 11, lines 34-60). Thus the inactive stations are in fact polled, albeit at a lesser frequency than the active stations. Joshi also discloses "dynamically determining the frequency of the repetition of steps (a) and (b), relative to the frequency of repetition of steps (c) through (e)," wherein steps (a) and (b) refer to polling active stations and step (c) through (e) refer to polling inactive stations. This meets the limitation of adapting a rate of polling associated with a session for a particular station. Joshi also discloses a step (g) that includes "repeating steps (a) and (b) and steps (c) through (e) in relative proportion to the dynamically determined relative frequency," which meets the limitation of continuing polling of each of the communication sessions according to the adapted polling pattern.

3. In response to Applicants' argument that there is nothing in Ruszczyk that suggests a need to modify the polling approach to avoid polling inactive stations, and thus there is no motivation to combine Ruszczyk and Joshi, the Examiner respectfully disagrees. The Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Joshi provides an improvement over the invention of Ruszczyk that would make the polling pattern more efficient. In view of an improvement to an invention, it is obvious to anyone of ordinary skill in the art to actually add that improvement to the invention whether the original inventor specifically states a need for improvement or not.

4. In response to Applicants' argument regarding claim 35, that even if combined, Ruszczyk in view of Joshi fails to disclose a polling approach with a multiple access control protocol, the Examiner respectfully disagrees. Ruszczyk discloses multiple stations that are contending for access on a shared medium (see Figure 1). Thus, the invention of Ruszczyk does disclose a multiple access protocol.

5. In response to Applicants' argument regarding claims 41 and 43, the argument is similar to that in regard to claim 1 and is addressed above.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 4, 8, 12, 14, 15, 17, 20, 21, 24, 26, 27, 28, 30-38 and 41-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Joshi et al. (U.S. Patent No. 6,006,017).

Regarding claims 1, 4, 8, 12, 15, 17, 21, 24, 30, 35, 41-45 and 47, Ruszczyk discloses a headend unit (910) that includes a connection manager (915) that provides connection admission control for efficient and fair allocation of network resources to individual end users subject to QoS constraints (col. 11, lines 31-39). The headend unit coordinates access to a shared medium, which may be a hybrid fiber-optic/coaxial (HFC) or wireless network (col. 2, lines 6-13). The headend unit provides access to such networks as the Internet, on-line services, telephone and cable networks (col. 2, lines 17-20). One constraint is that certain priority classes may be limited to a maximum number of contention mini-slots (col. 5, lines 44-47). A feedback controller (913) determines the assignment of mini-slots for each contention cycle and formats control messages, which may be targeted poll messages, downstream to the users. A headend scheduler (914) controls the timing of the control message transmissions by the feedback controller (col. 11, lines 44-53). The formation of targeted poll messages and timing of these messages meets the limitations of determining a polling pattern. Ruszczyk fails to expressly disclose adapting assignment of the communications resources and adapting the polling pattern by adapting the rate of polling. Joshi discloses that the proportion or percentage of channels allocated for

specific polling may be varied dynamically in response to the potentially changing transmission requirements of the network (col. 13, lines 54-58). This meets the limitations of adapting the assignment of communication resources in accordance with received statistics. Joshi also discloses adapting a rate of polling associated with particular stations and continuing polling of the stations in accordance with an adapted polling pattern (col. 11, lines 34-60). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to adapt the allocation of resources and adapt the rate of polling each station in the polling pattern of Ruszczyk in accordance with changing transmission requirements of the network and the specific amount of activity at each station. One of ordinary skill in the art would have been motivated to do this in order to provide more efficient allocation of resources.

Regarding claim 14, Ruszczyk discloses that the headend unit transmits data to an Access Interface Unit (AIU) on a downstream channel (col. 2, lines 21-28). The communication channels are carried by a shared medium such as a wireless network (col. 2, lines 10-13).

Regarding claims 20 and 28, Ruszczyk discloses connection admission control to users in accordance with QoS constraints. Maximum delay is a well-known QoS constraint.

Regarding claims 26 and 27, Ruszczyk discloses a headend unit (910), which represents the arbiter station of the present invention.

Regarding claims 31 and 32, Ruszczyk fails to expressly disclose assigning resources for a plurality of channels wherein assigning resources includes determining a separate polling pattern for each channel. Joshi et al. discloses a plurality of channels wherein each channel employs a specific polling procedure (col. 13, lines 42-58). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to provide a separate polling

procedure for each channel so as to more efficiently tailor the assignment of resources to the specific loads on each channel.

Regarding claims 33 and 34, Ruszczyk discloses that the shared channel may be wireless and that the headend may be connected to a telephone network.

Regarding claim 36, Ruszczyk discloses a User Interface (925) in Figure 9. In order for anything to be displayed at a user interface level, i.e. application layer in the standard OSI seven layer model, the information must have traveled through the network layer to process the encapsulating protocol. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to provide software at the network layer to process accepted messages. One of ordinary skill in the art would have been motivated to do this in order to prepare the information contained in the accepted message for the user interface.

Regarding claims 37 and 38, Ruszczyk fails to expressly disclose using an Ethernet protocol and Internet Protocol (IP). Ethernet and IP are two protocols that are well known in the art and widely used. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use Ethernet and IP in the system provided by the teaching of Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Joshi et al. (U.S. Patent No. 6,006,017). One of ordinary skill in the art would have been motivated to do this to be compatible with systems that already use Ethernet and IP.

Regarding claim 46, Ruszczyk discloses that the headend may be connection to a communication network (140).

8. Claims 3, 16, 19, 22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Joshi et al. (U.S. Patent No. 6,006,017) as applied to claims 1, 4, 8, 12, 14, 15, 17, 20, 21, 24,26, 27, 28, 30-38 and 41-47 above, and further in view of Lyles et al. (U.S. Patent No. 5,917,822).

Regarding claims 3, 16, 19 and 22, the teaching provided by Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Joshi et al. (U.S. Patent No. 6,006,017) meets all of the limitations, except for accepting a request and admitting the new communication session provided available communication resources are not exceeded. Lyles discloses a head-end controller (105) that may be implemented as one or more programs executed by one or more programmable processors (col. 9, lines 25-34). Lyles also discloses that terminal equipment (210) can transmit a request in response to a direct poll by the head-end controller (col. 10, lines 37-450. Access to an upstream channel is granted on a specific station basis. The grants are transmitted as messages in the downstream channel to the appropriate stations (col. 9, line 61 – col. 10, line 7). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the process of granted requested resources in the system provided by the teaching of Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Joshi et al. (U.S. Patent No. 6,006,017). It would have been obvious to only grant the requested resources if they did not exceed the maximum number of mini-slots allowed for a particular priority class. One of ordinary skill in the art would have been motivated to use the contention based requesting and granting of resources because this is more efficient than polling when the load on a shared medium is low. One would have been motivated to deny a request if it exceeded the maximum number of mini-slots so as not to interfere with mini-slots designated for another priority class.

Regarding claim 25, the teaching provided by Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Joshi et al. (U.S. Patent No. 6,006,017) meets all of the limitations, except for adapting assignment of the communications resources and adapting the polling according to queue length. Lyles discloses that the head-end controller maintains a representation of a queue for each traffic class for the terminal equipment in the form of a counter for the aggregate number of requests received but not yet granted for the identified terminal equipment (col. 14, lines 9-13). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to adapt the assigning of resources and the polling pattern according to the queue counter for each terminal. One of ordinary skill in the art would have been motivated to do this in order to allow terminals with a full queue to be polled to transmit data.

9. Claims 5, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Joshi et al. (U.S. Patent No. 6,006,017) as applied to claims 1, 4, 8, 12, 14, 15, 17, 20, 21, 24, 26, 27, 28, 30-38 and 41-47 above, and further in view of Schoch (U.S. Patent No. 5,973,609).

Regarding claims 5 and 6, the teaching provided by Ruszczyk et al. in view of Joshi et al. meets all of the limitations of claim 5, except assigning communications resources according to maximum intervals between polling of the plurality of sessions. Schoch discloses dividing the stations to be polled into a number of groups. These groups are equivalent to the subsets of the present invention. The maximum number of groups allowed is equal to the total number of data terminals in the system (col. 5, lines 37-62). If the maximum number of groups is allowed, then the interval between polling of each session from each terminal would be at its maximum. At the

time the invention was made, it would have been obvious to a person of ordinary skill in the art to divide the terminals into groups and use the maximum polling interval. One of ordinary skill in the art would have been motivated to do this in order to decrease the number of collisions on the shared medium.

Regarding claim 7, the teaching provided by Ruszczyk et al. in view of Joshi et al. thus far provides for all of the limitations, except for sending retransmissions and assigning communications resources included adjusted data rate requirements in accordance with the retransmissions. Joshi discloses that when collision occurs on the shared medium, retransmission may be required (col. 2, line 61 – col. 3, line 8). If retransmissions occur, then the bandwidth on the shared medium that can be assigned will automatically become less, i.e. adjusting data rate requirements. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use retransmissions in the system provided by Ruszczyk et al. in view of Joshi et al. One of ordinary skill in the art would have been motivated to do this because collisions may occur if polling is performed on a group, or subset, basis.

10. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ruszczyk et al. (U.S. Patent No. 5,886,993) in view of Joshi et al. (U.S. Patent No. 6,006,017) as applied to claims 1, 4, 8, 12, 14, 15, 17, 20, 21, 24, 26, 27, 28, 30-38 and 41-47 above, and further in view of Way (U.S. Patent No. 5,768,280).

Regarding claim 29, the teaching provided by Ruszczyk et al. in view of Joshi et al. provides for all of the limitations, except for assigning communications resources in accordance with security requirements. Way discloses a method of polling to be used to provide network

security (col. 2, lines 15-31). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include this security feature in the system provided by the teaching of Ruszczyk et al. in view of Joshi et al. One of ordinary skill in the art would have been motivated to do this to be sure that no station was pirating bandwidth that it has not been allocated.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication, or earlier communications from the examiner should be directed to Thomas Volper whose telephone number is 703-305-8405 and fax number is 703-746-9467. The examiner can normally be reached between 8:30am and 6:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached at 703-308-6602. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Thomas E. Volper

TEV

May 18, 2004

HUY D. VU
SUPERVISORY PATENT EXAMINER
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